U. S. DEPARTMENT OF COMMERCE

JESSE H. JONES, Secretary

NATIONAL BUREAU OF STANDARDS
LYMAN J. BRIGGS, Director

FACTORY-FITTED DOUGLAS FIR ENTRANCE DOORS

COMMERCIAL STANDARD CS91-41

Effective Date for New Production from February 10, 1941



A RECORDED VOLUNTARY STANDARD OF THE TRADE

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON: 1941

PROMULGATION

of

COMMERCIAL STANDARD CS91-41

for

FACTORY-FITTED DOUGLAS FIR ENTRANCE DOORS

On January 19, 1940, at the instance of the Fir Door Institute, a proposed commercial standard for factory-fitted Douglas fir entrance doors was submitted to manufacturers, and to distributor and consumer organizations, for comment. An adjusted draft was then circulated to those directly concerned for written acceptance. The trade has since accepted and approved for promulgation by the United States Department of Commerce, through the National Bureau of Standards, the standard as shown herein.

The standard is effective for new production from February 10, 1941.

Promulgation recommended.

I. J. Fairchild, Chief, Division of Trade Standards.

Promulgated.

Lyman J. Briggs,
Director, National Bureau of Standards.

Promulgation approved.

Jesse H. Jones, Secretary of Commerce.

FACTORY-FITTED DOUGLAS FIR ENTRANCE DOORS

COMMERCIAL STANDARDS CS91-41

PURPOSE

1. The purpose of this commercial standard is to establish standard specifications for factory-fitted Douglas fir entrance doors for the guidance of producers, distributors, and users; to provide a uniform basis for guaranteeing compliance through the use of labels or certification; to avoid delays and misunderstandings; and to effectuate economies through the broader use of factory-fitted entrance doors.

2. In the development of this standard there is no desire to suppress architectural expression, and custom-made doors will still be available from the usual sources.

SCOPE

3. This standard provides minimum specifications for one grade of factory-fitted Douglas fir entrance doors 134 in. thick. It covers 27 layouts, 25 of which are panel or sash doors and 2 are flush doors. All doors are available in two sizes, 3 ft by 6 ft 8 in. and 3 ft by 7 ft. It also covers packaging, inspection, nomenclature and definitions, and the method of certification of compliance with this standard. Detail schedules of layouts are listed beginning on page 4.

GENERAL REQUIREMENTS

4. All commercial standard factory-fitted fir entrance doors shall meet the following general requirements:

5. Material.—Doors shall be made of 100 percent heartwood, kiln-

dried, old-growth Douglas fir.

6. Workmanship.-Doors shall be well manufactured and machined, and all flat surfaces of both faces shall be smoothly sanded.

7. Thickness.—Doors shall be 134 in. thick, and a thickness tolerance of minus 1/16 in. shall be allowed.

8. Seasoning.—The material shall be kiln-dried according to

accepted methods to a proper and uniform moisture content.

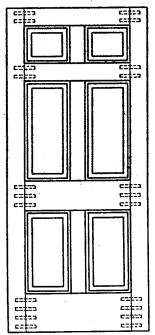
9. Packaging.—Each door shall be scuff-stripped on the top and bottom edges and securely wrapped in heavy paper or cartoned to prevent damage while in storage and transit.

DETAIL REQUIREMENTS

10. Size.—Doors shall be 3 ft by 6 ft 8 in. or 3 ft by 7 ft, as specified. They shall be accurately cut to size, within a tolerance of $\pm \frac{1}{32}$ in.

11. Panel and sash doors.

12. Construction.—Shall be assembled by what is known as "dowelled construction"; (see fig. 1) that is, stiles and rails to be bored to receive fir dowels not less than 5 in. in diameter by not less than 5 in. long. The dowels shall have glue grooves. Dowels shall be set in water-resistant glue and shall extend approximately one-half their length into each stile and rail, and assembled under pressure. Rails 6 in. or less in width shall have two dowels; there shall be one additional dowel for each additional 3 in. in width or fraction thereof.



For rails 6 in. or less in width, two dowels at each end. One additional dowel at each end for each additional 3 in. in width or fraction thereof.

Dowels not less than 5 in. in diameter and not less than 5 in. long with glue grooves.

FIGURE 1.—Panel-and-sash door construction.

13. Stiles and rails.—Stiles and rails shall be of 100 percent heartwood, selected, all vertical grain old-growth Douglas fir, the faces of which must be clear, with the exception that each stile may contain one carefully repaired pitch seam on each side, provided that such pitch seam does not extend through the piece nor exceed 3½ in. in length. Such pitch seams shall not be over 35 in. from the bottom of the door. Bottom rail may contain one neatly repaired pitch seam, the same as the stiles.

14. Panels.—All panels shall be raised, solid, and ¾ in. thick, of 100 percent heartwood, selected, all vertical grain old-growth Douglas fir, the faces of which must be clear. Panels shall be raised

one or two sides as specified, except door number 2015, which shall have panels raised on both sides. (See fig. 2.)

have panels raised on both sides. (See fig. 2.)

15. Glazing.—Doors having glass openings, indicated on designs by "G," are available only as shown under designs and layouts beginning on page 4. Glass is not furnished.

16. Sticking.—Either \(\frac{7}{8} \)-in. "wide sticking 'A' or 'B'" or \(\frac{1}{2} \)-in. "ovolo" sticking will be furnished around panels as specified, unless otherwise indicated on layouts. (See fig. 2.) Defective sticking which may develop in machining must be carefully repaired or neatly explaced.

17. Raised moldings.—Unless otherwise indicated on layouts, doors with raised molding on one side, around panels, are regularly

available.

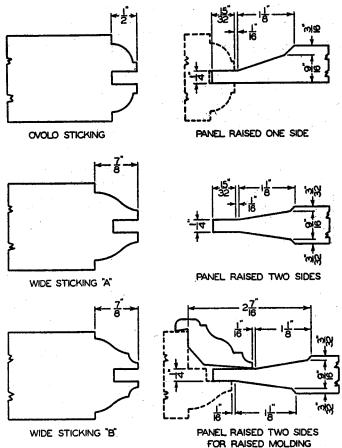


FIGURE 2.—Sticking and panel details.

18. Flush doors.—(Designs 2025 and 2030).
19. Construction.—The core for flush doors shall be constructed of stiles not less than 4 in. wide, filled in between with strips properly jointed and glued, forming a solid core. The core shall be redried and finished to a smooth surface before applying the crossbanding. The stiles may be of one piece or built up of two or more strips well-glued together. The crossbandings and face veneers shall be glued to each side of the core with water-resistant glue and assembled under pressure. Doors may be five- or seven-ply construction at the

option of the manufacturer.

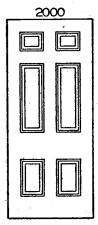
20. Veneers.—The veneers on each side of the core shall be of the same thickness. The face veneers for slab doors having V-grooves on one face (design 2025) may be rotary cut or vertical grain, as specified. If rotary cut, it shall be not less than ½ in. thick before sanding, while if it is vertical grain, it shall be either of one thickness not less than ¼ in., or two thicknesses of ½ in. each before sanding. For plain flush doors (design 2030) the face veneers may be rotary cut or vertical grain, as specified, not less than ½ in. thick before sanding. Crossbandings shall be not less than ½ in. or more than ½ in. thick.

FACTORY-FITTED DOUGLAS FIR ENTRANCE DOOR LIST

21. The layouts and designs for factory-fitted Douglas fir entrance doors are illustrated beginning below.

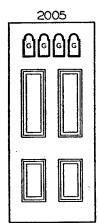
22. Measurements for stiles, rails, and muntins shown in layouts

are over-all, including sticking.



Stiles and top rail	53/8"
Lock rail	11%"
Intermediate rail and muntins	53/8" 93/6"
Bottom rail	93/8′′
Height from bottom of door to top of lock	
rail	36¾"
Height from top of door to bottom of inter-	
mediate rail	181/2"

Height of center panels varies with height of door. Sticking: Ovolo or wide sticking "A" or "B." Raised molding one side—optional.



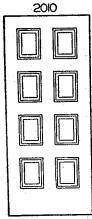
Stiles	58/6"
Top rail	53/8"' 63/8"'
Lock rail	98%"
Intermediate rail and muntins	53%"
Bottom rail	93%"
Bars between glass	13/8"
Height from bottom of door to top of lock	
rail	363/8"
Height from top of door to bottom of inter-	
mediate rail	19′′

Height of top panels varies with height of door.

Sticking: Ovolo or wide sticking "A" or "B" around panels only. Ovolo sticking and glass bead around openings for glass.

Raised molding one side around panels only—optional.

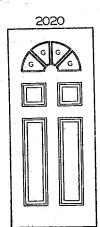
Glass not furnished.



	
Stiles and top rail	53/8" 53/8" 53/8" 113/8"
Lock rail	53/8"
Intermediate rails and muntins	588
Bottom rail	11%.

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Panels equal.



Stiles and top rail	53/8
Lock rail	53/8
Intermediate rail and muntins	53/8
Bottom rail	93/
Hub.	41/2
Bars between glass	72
Height from top of door to top of inter- mediate rail	19//
mediate rali	10

Sticking: Ovolo or wide sticking "A" or "B" around panels only. Ovolo sticking and bead around openings for glass.

Top panels square.

Raised molding one side around panels only—optional.

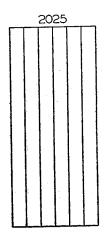
Glass not furnished.

2015

Panels ¾" raised 2 sides only.

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional.

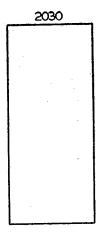


5 equal grooves—one face.

Rotary cut face veneers not less than $\frac{1}{8}$ thick before sanding.

5- or 7-ply construction at manufacturers' option.

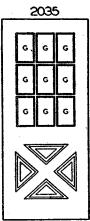
Can also be furnished with vertical grain face veneers not less than 1/4" thick or two thicknesses of 1/4" each before sanding.



Rotary cut face veneers not less than \mathcal{H}'' thick before sanding.

5- or 7-ply construction at manufacturers' option.

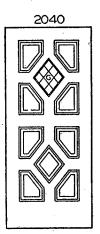
Can also be furnished with vertical grain face veneers not less than 14" thick or two thicknesses of 1/4" each before sanding.



Sticking: Ovolo only and ovolo bead around openings for glass.

Raised molding not furnished.

Glass not furnished

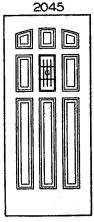


Sticking: Ovolo or wide sticking "A" or "B."

'L" molding and bullnose bead around opening for glass. (Ovolo bead if ovolo sticking.)

aised molding one side—optional.

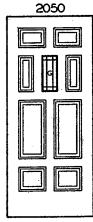
Glass not furnished.

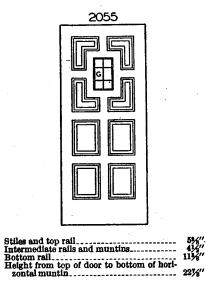


Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Wicket-sash and grille furnished.

Glass not furnished.





	19/11
Stiles and top rail	412"
Intermediate rails and munting	412"
Rottom rail	1136"
Height from top of door to bottom of upper	/6
intermediate rail	167/8"
intermediate rail	281/6"

Sticking: Ovolo or wide sticking "A" or "B."

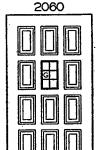
Glass not furnished.

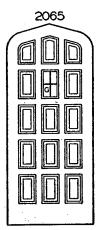
Raised molding one side—optional. Wicket-ash furnished. Grille optional.

Raised molding one side—optional. Wicketsash furnished. Grille optional.

Glass not furnished.

Sticking: Ovolo or wide sticking "A" or "B"





Lock rail	railails and muntins	5 3 3 9

Sticking: Ovolo or wide sticking "A" or "B."

"L" molding and bullnose bead around opening for glass. (Ovolo bead if ovolo sticking.)

Raised molding one side—optional.
Panels equal. Glass not furnished.

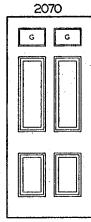
Stiles and top rail	
Lock rail	
Intermediate rails and muntins	
Bottom rail	

Sticking: Ovolo or wide sticking "A" or "B"

"L" molding and bullnose bead around opening for glass. (Ovolo bead if ovolo sticking.)

Raised molding one side—optional. Rectangular panels equal.

Glass not furnished.



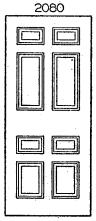
<u> </u>	
Stiles and top rail	53/8
Stiles and top rail	93/8'
Intermediate rail and muntins	53/8' 93/8'
Bottom rail	98/8
Height from bottom of door to top of lock	009/
rail	3098

Sticking: Ovolo or wide sticking "A" or "B".

"L" molding and bullnose bead. around openings for glass. (Ovolo bead if ovolo sticking.)

Raised molding one side—optional.

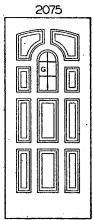
Glass not furnished.



O. 15	
Stiles and top rail	53/8"
Lock rail	9′′
Intermediate rails and muntins	4½" 8"
Bottom rail	8''
Height from top of door to top of upper	100 (11
intermediate rail	$12\frac{3}{8}$ "
Height from bottom of door to top of lock	
rail	45"

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional.

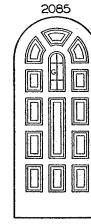


Stiles and top rail	58.67
Intermediate rails and muntinsBottom rail	53/3" 33/4" 113/4"
Height from top of door to bottom of upper intermediate rail	3416"
THE INCIDENTAL CONTRACTOR OF THE PARTY OF TH	. 01272

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Wicket-sash furnished. Grille optional.

Glass not furnished.

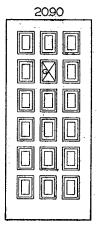


Stiles and top rail Intermediate rails and muntins Bottom rail Height from top of door to bottom of upper intermediate rail	534" 334"' 1138" 3412"
Sticking Ovolo or wide sticking "A" or	

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Wicket-sash furnished. Grille optional.

Glass not furnished.



_	2095

Stiles and top rail	586"
intermediate rans and muntins	-31/"
Bottom rail	95%"
in a contract of the contract	

Sticking: Ovolo or wide sticking "A" or "B."

"L" molding and builnose bead around openings for glass. (Ovolo bead if ovolo sticking.)

Raised molding one side—optional. Panels equal.

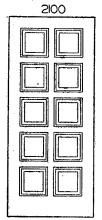
Wicket-sash and glass not furnished.

<u> </u>	
Stiles and top rail Intermediate rails and muntins Bottom rail	5% 3% 11%

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Wicket-sash furnished. Grille optional.

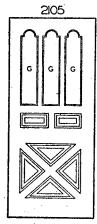
Glass not furnished.



tiles and top rail	53/61
ttiles and top rail	33%
ntermediate rails and muntins	382
Bottom rail	93%
Sottom rail	9%

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional. Panels equal.

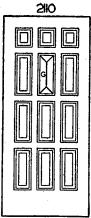


Stiles and top rail
Lock fall
Intermediate rail and muntin
Bottom rail
Cross bucks
Bars between glass
Height from bottom of door to top of lock
rail

Sticking: Ovolo only and ovolo bead around openings for glass.

Raised molding not furnished.

Glass not furnished.

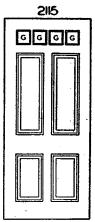


Stiles and top rail	53/4" 33/4" 113/4"

Raised molding one side—optional. Wicket-sash furnished. Grille optional.

Glass not furnished.

Sticking: Ovolo or wide sticking "A' or "B."

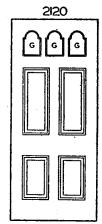


Stiles and top rail	53/
Lock rail	. 97/
Intermediate rail and muntins	41/4 8//
Bottom rail	877
Bars between glass	1"
Height from bottom of door to top of lock	-
rail	36"

Sticking: Ovolo or wide sticking "A" or "B" around panels only. Ovolo sticking and bead around openings for glass.

Raised molding one side—optional.

Glass not furnished.

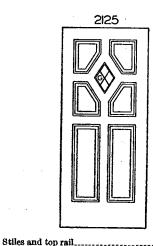


Stiles	536"
TOD LAM	682"
Lock rail	046"
Intermediate rail and muntins	53/8"' 63/8"' 93/8"' 53/8"' 93/8"'
Bottom rail	082"
Rore hotwoon close	978
Height from bottom of door to ton of lock	
rail	363/8"

Sticking: Ovolo or wide sticking "A" or "B" around panels only. Ovolo sticking and bead around openings for glass.

Raised molding one side—optional.

Glass not furnished.



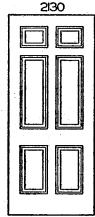
Lock rail	
Intermediate rail and muntins Bottom rail	1
Sticking: Ovolo or wide sticking "A" or	

"B."

"L" molding and bullnose bead around opening for glass. (Ovolo bead if ovolo sticking.)

Raised molding one side—optional.

Glass not furnished.



·	
Stiles and top rail	53/6"
	53/8"' 8"'
Intermediate rail and muntins	41/2"
Bottom rall	03.4"
Height from bottom of door to top of lock rail	-/0
rail	3634"
Height from top of door to bottom of inter-	,6
mediate rail	1756"
	76

Sticking: Ovolo or wide sticking "A" or "B."

Raised molding one side—optional.

INSPECTION

23. All doors sold as conforming to this commercial standard are subject to inspection in the condition received, and complaints regarding any shipment shall be made within five (5) days after receipt thereof. Any rejected doors shall be held, properly protected, for a period of three (3) weeks after notice of rejection and pending adjustment.

CERTIFICATION AND MARKING

24. In order to assure the purchaser that he is getting factory-fitted Douglas fir entrance doors of the high quality covered by this specification, producers may individually or in concert with their trade association, or inspection bureau, certify specific shipments or mark each door by stamp, brand, or label as conforming to the commercial standard.

25. The appearance of this Fir Door Institute label, as applicable to factory-fitted Douglas fir entrance doors, is a guarantee by the



manufacturer that the door conforms to Commercial Standard CS91-41, including all-heart, vertical grain, factory-fitted, individually packed, scuff-stripped, trade-marked, old-growth Douglas fir doors and subject to control inspection by the Fir Door Institute.

NOMENCLATURE AND DEFINITIONS

Check.—A lengthwise separation of the wood which occurs across the rings of annual growth.

Core.—The core is the innermost layer in flush door construction. Crossbanding.—The veneer used in the construction of flush doors, which is placed between the core and face veneer, with the direction of the grain at right angles to that of the face veneer.

Flush door.—Made up of a core, crossbanding, and face veneers. Heartwood.—The darker-colored wood occurring in the inner por-

tion of the tree, sometimes referred to as "heart."

Kiln-dried.—Dried by artificial heat to a moisture content which is less than can normally be obtained through the natural process known as air seasoning.

Moisture content of wood.—Weight of the water contained in the wood expressed in percentage of the weight of the oven-dry wood.

Muntin.—Any short or light bar, either vertical or horizontal, in a door, between glass or panels and not extending the full width or length of the door.

Panel door.—Made up of stiles, rails, and one or more panels, the

stiles and rails forming the frame around the panel.

Pitch seam.—A shake or check which is filled with pitch.

Rail.—The cross, or horizontal, piece of the framework of the door. Sash door.—Same as panel door, except one or more panels are replaced by glass.

Shake.—A lengthwise separation of the wood, which occurs usually

between and parallel to the rings of annual growth.

Stiles.—The upright, or vertical, outside pieces of a door.

Vertical grain.—Vertical grain lumber has been sawed parallel with the pith of the log and approximately at right angles to the growth rings; that is, the rings form an angle of 45 degrees or more with the surface of the piece.

EFFECTIVE DATE

The standard is effective for new production from February 10.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Each organization nominated its own representative. Comment concerning the standard and suggestions for revision, may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

Manufacturers:

W. P. WOOLLEY (chairman), Fir Door Institute, Tacoma, Wash.

A. L. Morisette, Clear Fir Lumber Co., Tacoma, Wash. HENRY L. MERTZ, Buffelen Lumber & Mfg. Co., Tacoma, Wash.

A. C. ERICKSON, M & M Woodworking Co., Portland, Oreg.

Distributors:

FRED C. KREUSCHER, Hussey-Williams Co., Inc., Ozone Park, L. I., New York. Representing National American Wholesale Lumber Assn., Inc. National Association of Wood Work Jobbers, Inc. (Invited to name representative.) Western Retail Lumbermen's Association. (Invited to name representative.)

Users:

EARL W. MAOY, Property Standards Section, Technical Division, Federal Housing Administration, Washington, D. C. THEODORE IRVING COE, The Department of Technical Services, American Institute of Architects, 1741 New York Ave. NW., Washington, D. C.
George P. Locker, Metropolitan Building Co., 1201 4th Avenue, Seattle, Wash.
Representing National Association of Purchasing Agents. A. G. Bear, Construction Service, Veterans' Administration, Washington, D. C.

HISTORY OF PROJECT

On August 10, 1939, the Fir Door Institute requested the cooperation of the National Bureau of Standards in the establishment of a commercial standard for factory-fitted Douglas fir entrance doors. A draft of a proposed commercial standard was submitted to producers, and to a large number of distributor and consumer organizations, for their review and comment. After the requirements were harmonized and adjusted so that the draft represented the composite views of all interested groups, the recommended commercial standard was circulated on October 14, 1940, to those directly concerned for written acceptance.

Upon receipt of official acceptance, estimated to represent a satisfactory majority of the production volume, and in the absence of active, valid opposition, the standard was promulgated as Commercial Standard CS91-41, effective for new production from February 10,

1941.

ACCEPTANCE OF COMMERCIAL STANDARD

	of this commercial standard.	94.5	
	Division of Trade Standa National Bureau of Stand Washington, D. C.	rds, lards,	
	Gentlemen:		
	Having considered the we accept the Commerci practice in the	statements on the reverse stal Standard CS91-41 as of	de of this sheet, our standard of
(e	Production ¹	Distribution ¹	$\mathbf{U}\mathbf{se^{i}}$
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(Cut on this	We will assist in securi cooperate with the stand standards when necessary Signature of individual of (Kindly type Name and title of above of Organization (Fill in	ng its general recognition a ling committee to effect 1 fficer (In ink) ewrite or print the following lines)	revisions of the

¹ Please designate which group you represent by drawing lines through the other two. Please file separate acceptances for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval, the words "in principle" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in

connection with the acceptance and its significance:

1. Enforcement.—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. The acceptor's responsibility.—The purpose of commercial standards is to establish for specific commodities, nationally recognized grades or consumer criteria and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standards and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where praticable, in the production, dis-

tribution, or consumption of the article in question.

3. The Department's responsibility.—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. Announcement and promulgation.—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and

publication.

ACCEPTORS

The organizations and individuals listed below have accepted this commercial standard as their standard of practice in the production, distribution, and use of factory fitted Douglas fir entrance doors. Such endorsement does not signify that they may not find it necessary to deviate from the standard, nor that producers so listed guarantee all of their products in this field to conform with the requirements of this standard. Therefore, specific evidence of quality certification should be obtained where required.

ASSOCIATIONS

American Specification Institute, Chicago, Ill. Appalachian Hardwood Manufacturers, Inc., Cincinnati, Ohio. Arizona Retail Lumber & Builders Supply Association, Inc., Phoenix, Ariz. Building Officials Conference of Amer-

ica, Inc., Washington, D. C. Carolina Lumber & Building Supply Association, Charlotte, N. C. principle.)

Central Ohio Lumber Institute, Columbus, Ohio.

Douglas Fir Plywood Association, Tacoma, Wash. (In principle.) Fir Door Institute, Tacoma, Wash.

Michigan Retail Lumber Dealers Association, Lansing, Mich. Mississippi Retail Lumber Dealers Asso-

ciation, Inc., Jackson, Miss. National Hardwood Lumber Association, Chicago, III. (In principle.)

Ohio Association of Retail Lumber Dealers, The, Xenia, Ohio. West Coast Lumbermen's Association,

Seattle, Wash. (In principle.) Wisconsin Retail Lumbermens Association, Milwaukee, Wis.

FTRMS

A One Building Material Co., Evansville. Acme Door Co., Hoquiam, Wash. Adams, Franklin O., Tampa, Fla. Allen, George W., LaPorte, Ind. Allen Lumber Co., Elwood, Philadelphia, Allison & Allison, Los Angeles, Calif. Amarillo Sash & Door Co., Amarillo, American Sash & Door Co., Kansas City, Anderson Lumber Co., Ogden, Utah.

Andrews, Jones, Biscoe & Whitmore, Boston, Mass. Andrews Lumber Co., C. E., New Bethlehem, Pa. Arizona Sash Door & Glass Co., Phoenix & Tucson, Ariz.

Auler, Jensen & Brown, Oshkosh, Wis. Austin, Ennis R., South Bend, Ind. Bahe Co., Edward J., Chicago, Ill. Balch & Lippert, Madison, Wis. Barger Millwork Co., Statesville, N. C. Barnes Lumber Co., W. F. & J. F., Waco,

Tex.

Baumer, Herbert, Columbus, Ohio. Beacham & LeGrand, Greenville, S. C. Beasley & Sons Co., Nashville, Tenn. Becker Danowitz Co., Inc., Brooklyn, N. Y.

Bell Manufacturing Co., Inc., C. C., West Monroe, La.

Bettcher, Geo. F., Denver, Colo. Beuttler & Arnold, Sloux City, Iowa. Bial, George F., Hasbrouck Heights, N. J.

Binswanger & Co., Inc., Richmond, Va. Bishop, Horatio W., Los Angeles, Calif. Black Millwork & Lumber Co., Inc., Midland Park, N. J.

Blackburn, Inc., Robert, Milwaukee, Wis.

Blake, Edgar Ovet, Evanston, Ill. Blatter, R. H., Washington, D. C. Blithe, Wesley Lesher, Philadelphia, Pa. Boehm, George A., New York, N. Y. Borland Lumber Co., Oil City, Pa. Bosman & Casson, Inc., Harrison, N. J. Bovard, William R., Kansas City, Mo.

(In principle.) Brainerd, Harry B., New York, N. Y. (In principle.)

Braseth & Houkom, Fargo, N. Dak. Brazer, Clarence W., New York, N. Y. Brew Manufacturing Co., Puyallup, Wash.

Brockway-Smith-Haigh-Lovell Co., Boston, Mass.

Brown, W. J., Cedar Rapids, Iowa. Brown-Graves Co., Akron, Ohio. Brust & Brust, Milwaukee, Wis. Buchanon & Smock Lumber Co., Asbury Park. N. J. Buechner & Orth, St. Paul, Minn. (In principle.) Buffalo Plywood Corporation, Buffalo, Buffelen Lumber & Manufacturing Co., Tacoma, Wash. & Fort Worth, Tex. Building Service, Inc., Great Falls, Mont. Burritt Lumber Co., The A. W., Bridgeport. Conn. Byron Sash & Door Co., Inc., Louisville, C-W Plywood Co., Chicago, Ill. California Builders Supply Co., Oakland, Calif. Cameron Lumber Co., Inc., Newburgh, Camlet, J. Thomas, Clifton, N. J. Camp Plywood Co., Inc., The E. W., Indianapolis, Ind. Candela, Rosario, New York, N. Y. Cannon & Mullen, Salt Lake City, Utah. Capitol Lumber Co., Indianapolis, Ind. Carder, Macon O., Amarillo, Tex. Carlow Co., Los Angeles, Calif. Carnahan Manufacturing gootee, Ind. Central Glazing Co., Fort Worth, Tex. Cervin & Stuhr, Rock Island, Ill. Charlottesville Lumber Co., Inc., Charlottesville, Va. Chase Lumber Co., S. H., San Jose, Calif. Chiaverini, Francis, Providence, R. I. (In principle.) Child, Harry Charles, Sayre, Pa Churchill Cabinet Co., Chicago, Ill. Cincinnati Butchers' Supply Co., The, Cincinnati, Ohio. Clark, Carl W., Cortland, N. Y. Clear Fir Lumber Co., Tacoma, Wash. Cleary Millwork Co., Inc., Ansonia, Conn. Clem Lumber Co., Dallas, Tex. Cline Bros. Lumber Co., Inc., Kendallville, Ind. Clinger's Sons, D., Milton, Pa. Coit, E., New York, N. Y. Combs Lumber Co., Inc., Lexington, Ky. Conrad & Cummings, Binghampton, N. Y. Conrow, H. S., Wichita, Kans. Coolbaugh & Son Co., C. C., Gloucester City, N. J. Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass. Cooper, David M., Ambridge, Pa. Cornell University, College of Architecture, Ithaca, N. Y. (In principle.) Cram & Ferguson, Boston, Mass. Cross, Austin & Ireland Lumber Co., Hammond Lumber Co., Los Angeles, Brooklyn, N. Y.

Crowell & Lancaster, Bangor, Maine. Curtis Co., Ros., Detroit, Mich. Cuthbert & Cuthbert, Ann Arbor, Mich. D'Arcy Co., Dover, N. H. Jarnette, Charles Wagner, Des Moines, Iowa. Delehanty, Andrew L., Albany, N. Y. Denby, Edwin H., New York, N. Y. Dibble Lumber Co., The S. B., North Adams, Mass. District of Columbia, Engineer Department, Washington, D. C. Dodge Corporation, F. W., Chicago, Ill. Dodge & Morrison, New York, N. Y. Donlin-Johnson Co., St. Cloud, Minn. Dower Lumber Co., John, Tacoma, Wash. Dunlap & Co., Inc., Columbus, Ind. Eichenlaub, Geo. E., Erie, Pa. Emery Industries, Inc., Cincinnati, Ohio. English, Harold T., Hutchinson, Kans. Estes Lumber Co., Birmingham, Ala. Evans Lee Co., The, Eau Claire, Wis. Evans MacArthur Co., New York, N. Y. Evansville Sash & Door Co., Inc., Evansville, Ind. Everett & Associates, H. F., Allentown, Pa. Exchange Lumber & Manufacturing Co., Spokane, Wash. Farley & Loetscher Manufacturing Co., Dubuque, Iowa. Fellheimer & Wagner, New York, N. Y. Fink & Schindler Co., San Francisco, Calif. Fischer Lime & Cement Co., Memphis, Tenn. Fitz-Gibbon, T. David, Norfolk, Va. Flannagan, Eric G., Henderson, N. C. Flint Sash & Door Co., Inc., Flint, Mich. Florida, University of, School of For-estry, Gainesville, Fla. (In principle.) Foltz & Son, Herbert, Indianapolis, Ind. Foster Co., Inc., James P., Baltimore, Md. Frantz & Spence, Saginaw, Mich. Frederick Bros., Inc., Pottstown, Pa. Fuller & Co., W. P., Seattle & Spokane, Wash. & Boise, Idaho. Gaertner, Otto, New York, N. Y.
Gall, Harry L. C., New York, N. Y.
Garber, Frederick W., Cincinnati, Ohio. General Millwork Corporation, Utica, N. Y. Gibb, The Office of Arthur N., Ithaca, N. Y. Ginsberg & Sons, Inc., D., Corona, N. Y. Gourley & Co., John, Highland Park, Ill. Great Lakes Sash & Door Co., The, Cleveland, Ohio. Greenstein, Louis, Buffalo, N. Y. Hahn, Stanley W., Silver Spring, Md. Hall-Gregg, Inc., Somerville, Mass. Hallberg & Beersman, Chicago, Ill.

Calif.

Hannaford, Frederick T., Gainesville, Hannaford & Sons, Samuel, Cincinnati, Ohio. Harbor Plywood Corporation, Hoquiam, Wash. Harbor Sales Co., Inc., Baltimore, Md. & Washington, D. C. Hardin Sash & Door Co., H. H., Fort Worth, Tex. Harley & Ellington, Detroit, Mich. Hartung & Hansen, Inc., Seattle, Wash. Hasness, C. D., Harrisburg, Pa. Hastings & Co., Inc., A. W., Boston, Mass. Hausman, N. W., Glen Cove, N. Y Havre Builders Supply Co., Havre, Mont. Helfensteller, Hirsch & Watson, St. Louis, Mo. Hentz, Adler & Shutze, Atlanta, Ga. Hodgdon & Son, Charles, Chicago, Ill. Hogan Lumber Co., Oakland, Calif. Holsman & Holsman, Chicago, Ill. Home Supply Co., Kimberly, Wis. Hope, Frank L., Jr., San Diego, Calif. Hopkins, Albert Hart, Buffalo, N. Y. Houston, Better Business Bureau of, Houston, Tex. (In principle.) Hunter Lumber Co., Chillicothe, Ill. Hutchings, E. T., Louisville, Ky. Hyde-Murphy Co., Ridgway, Pa. Independent Lumber Co., The, Grand Junction, Colo. Iron City Sash & Door Co., Pittsburgh, Pa. Ivey, Inc., Edwin J., Seattle, Wash. Jefferson Wood Products Co., Jefferson, Joannes, Francis Y., New York, N. Y. Johnson, Keplar B., Seattle, Wash. Johnson & Lundgren, Tacoma, Wash. Johnson, Wallwork & Dukehart, Portland, Oreg. Johnson & Wimsatt, Inc., Washington, D. C. Jokel—Coy—Thal, Toledo, Ohio. Jones Hardwood Co., San Francisco, Calif. Kansas State College, Department of Architecture, Manhattan, Kans. Karcher, Walter T., & Livingston Smith, Philadelphia, Pa. (In principle.) Keely Plywood Co., Hal, Pittsburgh, Pa. Keich & O'Brien, Warren, Ohio. Kellogg & Sons Co., Charles C., Utica, N. Y. Kilpatrick Brothers, Inc., Oklahoma City, Okla. Knighton & Howell, Portland, Oreg. Kohn, Robert D.,-Chas. Butler, New York, N. Y. Kullberg Manufacturing Co., Minneapolis, Minn. Kyle, Herbert S., Charleston, W. Va. (In principle.) Larrick, Thomas, Athens, Ohio.

Law, Law & Potter, Madison, Wis. Lawrence, Holford & Allyn, Portland, Oreg. Leuckel & Co., Inc., A. K., Trenton, N. J. Levy, Will, St. Louis, Mo. Lewis Lumber Co., Spring Lake, N. J. Liberty Lumber & Manufacturing Co., Inc., Erwin, Tenn. Lockhart International, Inc., New York, N. Y. (In principle.) Lockman, Frederick V., Portland, Oreg. Loetscher & Burch Manufacturing Co., Des Moines, Iowa. Lumber Dealers Supply Co., Denver, Colo. Lumber Dealers Supply Co., Cheyenne, Wyo. Lumber Products, Inc., Portland, Oreg. Lumbermen's Supply, Inc., Sacramento, Calif. Lumbermen's Supply Co., Monroe, La. Lyman-Hawkins The. Lumber Co., Akron, Ohio. Lynch & Foard, Wilmington, N. C. Lyon-Gray Lumber Co., Dallas, Tex. M & M Wood Working Co., Portland, Oreg. MacConnell, Inc., Malcolm, University City, Mo. Mahlstedt Allied Materials, Inc., New Rochelle, N. Y. Mann & Co., Hutchinson, Kans. (In principle.) Maris Plywood Corporation, San Francisco, Calif. Martin, Edgar, Chicago, Ill. Martin & Son, A, Oscar, Doylestown, Pa. Mason & Co., George D., Detroit, Mich. Massena & du Pont, Inc., Wilmington, Del. Mauk-Seattle Lumber Co., Seattle, Wash. Mauran, Russell, Crowell & Mullgardt, St. Louis, Mo. McGowin-Lyons Hardware & Supply Co., Mobile, Ala. McPhillips Manufacturing Co., Mobile, Ala. Michigan Wholesalers, Inc., Jackson, Mich. Millard, Julian, Harrisburg, Pa. (In principle.) Miller & Yeager, Terre Haute, Ind. Mock & Morrison, Tacoma, Wash. Montague Millwork Co., Richmond, Va. Mooser, William, San Francisco, Calif. Morgan, David H., Philadelphia, Pa. Morgan Millwork Co., Baltimore, Md. Morgan Sash & Door Co., Oklahoma City, Okla. Morrison-Merrill & Co., Salt Lake City, Utah. Mueller, Fred G., & Walter R. Hair, Hamilton, Ohio. Muhlenberg Brothers, Reading, Pa. Muhlenberg, Yerkes & Muhlenberg,

Reading, Pa.

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N. Y. National Sash & Door Co., (Hortman-Salmen Co., Inc., Owner), New Orleans, La. National Wood Works, Sioux City, Iowa. Nelson, Albert L., St. Louis, Mo. New Orleans, Inc., Better Business Bureau of, New Orleans, La. (In principle.) Nicolai Door Sales Co., San Francisco, Calif Northern Lumber Co., Billings, Mont. Northwest Door Co., Tacoma, Wash. Norton, Paul W., Boston, Mass. (In principle.) Nurenburg, W. S., Fort Worth, Tex. Officer, Gwynn, Berkeley, Calif. Ohio City Sash & Door Co., Dayton, Oklahoma, University of, Norman, Okla. O'Neill Manufacturing Co., Inc., Rome, Oregon Door Co., Portland, Oreg. Pacific Mutual Door Co., 7 Tacoma, Wash, and Chicago, Ill. Pacific System Homes, Inc., Los Angeles, Calif. Pancoast, Russell T., Miami Beach, Fla. Parker Building Specialties, Inc., San Francisco, Calif. Pease Woodwork Co., Inc., Cincinnati, Ohio. Pennsylvania State College, Department of Forestry, State College, Pa. Pepper, George W., Jr., Philadelphia, Perlin Lumber Co., Brooklyn, N. Y. Phelps, Frederick A., Newark, N. J. Platt & Brother, F. P., New York, N. Y. Portsmouth Lumber Corporation, Portsmouth, Va. Provine, L. H., Urbana, Ill. (In principle.) Quigley Co., J. R., Gloucester City, N. J. Radford Co., The, Oshkosh, Wis. Radford & Sanders, Inc., Baltimore, Md. Red River Lumber Co., Los Angeles, Calif. Reid, William H., Jr., Billings, Mont. Remington Yards, Hibbing, Minn. Reynolds Lumber Co., The, New London, Ohio. Richards, McCarty & Bulford, Columbus, Ohio. Ritchie & Associates, James H., Boston, Mass. Robert & Co., Inc., Atlanta, Ga Roberts Corporation, U. N., Davenport, Iowa. Roberts Harbor Plywood Co., Pittsburgh, Pa. Roddis Lumber & Veneer Co., Milwaukee, Wis. Rogers Lumber Co., T. H., McAlester,

National Plywood Co., Inc., New York, Rohrer Lumber Co., D. J., Clintonville, Rounds & Porter Co., Wichita, Kans. Ruggles Lumber Co., Carlos, Springfield, Mass. Rutland Sash & Door Co., Inc., Rutland, Vt. Sash, Door & Glass Corporation, Richmond, Va. Schaeffler, Joseph C., New York, N. Y. Schell-Sasse Manufacturing Co., Jacksonville, Fla. Schirmer, Robert F., Woodhaven, New York, N. Y. Schoeppe, Edward, Philadelphia, Pa. Schofield, George Munson, Nyack, N. Y. Scott Lumber Co., The, Wheeling, W. Va. Searle & Chapin Lumber Co., Lincoln, Nebr. Sears, Roebuck & Co., Chicago, Ill. Shannon Sash & Door Co., Kansas City, Kans. Shenk Co., Henry, Erie, Pa. Sherman's Sons Co., R. A., Westerly, R. I. Shire, Edward I., New York, N. Y. Shutts & Morrison, Erie, Pa. Sidells, Arthur F., & Ellis M. Keppel, Warren, Ohio. Simons Lumber Co., Henry, Minneapolis, Minn. Simons Lumber & Manufacturing Co., Harry J., St. Paul, Minn. Sirrine & Co., J. E., Greenville, S. C. Sleeper, Harold R., New York, N. Y. Smedley Bros. Co., Frankford, Philadelphia, Pa. Smith, Wilton, San Francisco, Calif. Smith Co., Geo. P., Charles City, Iowa. Smith & Rumery Co., Portland, Maine. Smith, Werner & Billings, Alexandria, Va. Snell Sash & Door Co., St. Paul, Minn. Southwestern Bell Telephone Co., St. Louis, Mo. Southwestern Sash & Door Co., Joplin, Mo. Southwestern Sash & Door Co., Inc., Albuquerque, N. Mex. Southwestern Sash & Door Co., Inc., El Paso, Tex. Specification Record, Chicago, Ill. Standard Lumber & Supply Co., Ft. Wayne, Ind. Stanley, F. W., Ft. Worth, Tex. Staub, John F., Houston, Tex. Steves Sash & Door Co., Corpus Christi, Stoetzel, Ralph E., Chicago, Ill. Stopper, Eugene A., Philadelphia, Pa. Strable Hardwood Co., Oakland, Calif. Structural Service Bureau, Philadelphia, Pa. Sweet's Catalog Service, New York, N. Y.

Taylor, Henry L., St. Petersburg, Fla.

Taylor Sash & Door Co., Pensacola, Fla.

Taylor, Edward Cray, & Ellis Wing Taylor, Los Angeles, Calif. Teachout Co., The, Cleveland, Ohio. Temple, Seth J., Davenport, Iowa. (In principle.)

Thomas, Glen H., Wichita, Kans. Thorne, Henry Calder, Ithaca, N. Y. Treganza, A. O., Lemon Grove, Calif. Tulane Hardwood Lumber Co., Inc., New Orleans, La.

Tulsa Rig Reel & Manufacturing Co., Tulsa, Okla,

Underwood Coal & Supply Co., Mobile, Ala.

Union Planing Mill, Inc., Stockton, Calif.

Vaughan & Sons, Geo. C., Houston & San Antonio, Tex.

Velde Lumber Co., Pekin, Ill. Vetter Manufacturing Co., Stevens Point, Wis.

Victoria Sash & Door Co., Inc., Shreveport, La.

Virginia Polytechnic Institute, Blacksburg, Va.

Voell, Richard F., Alexandria, Va. Vogel, Willis A., Toledo, Ohio.

Walker & Gillette, New York, N. Y. Wanke Panel Co., Portland, Oreg. Ward-Brock Sash & Door Co., The, Cin-

cinnati, Ohio. Warren Brothers Co., Nashville, Tenn.

Washington Woodworking Co., Inc., Washington, D. C.

Watertown Sash & Door Co., Watertown, S. Dak.

Webster & Wilson, Los Angeles, Calif. Weimer & Sons, George, St. Albans, W. Va.

Weinberg, Joseph L., Cleveland, Ohio. (In principle.)

Weinel Lumber Co., Aug. F., Columbia,

Welch, Carroll E., Huntington, N. Y. Western Door & Sash Co., Oakland, Calif.

Wheeler Osgood Sales Corporation, Tacoma, Wash.

Wheelock, Inc., E. U., Los Angeles, Calif. Whitaker, Courtney L., Dravosburg, Pa. White Brothers, San Francisco, Calif.

Whitmer-Jackson Co., Inc., The, Buffalo, N. Y. & Cleveland, Ohio.

Whittier Lumber & Millwork Co., Newark, N. J.

Whitworth, Henry P., Miami, Fla. Wiles-Chipman Lumber Co., St. Louis, Mo.

Wilkinson Co., Inc., The, Indianapolis, Ind.

Willatsen, Andrew, Seattle, Wash. Willson, Fred F., Bozeman, Mont.

Wischmeyer, William F., St. Louis, Mo. Wood & Son, Associates, Edward J., Clarksburg, W. Va. Wright, Frank H., Detroit, Mich. (In

principle.)

Zoller & Muller, New York, N. Y.

U. S. GOVERNMENT

Federal Works Agency, United States Housing Authority, Washington, D. C. (In principle.)

Federal Works Agency, Work Projects Administration, Phoenix, Ariz.

Federal Works Agency, Work Projects Administration, Wilmington, Del. Federal Works Agency, Work Projects

Administration, Jacksonville, Fla. Federal Works Agency, Work Projects
Administration, Des Moines, Iowa.

Federal Works Agency, Work Projects Administration, Frederick, Md.

Federal Works Agency, Work Projects Administration, St. Paul, Minn. Federal Works Agency, Work Projects

Administration, Mitchell, S. Dak. Federal Works Agency, Work Projects Administration, Seattle, Wash.

Guam, Government of, Public Works Department, Guam.

Interior, Department of the, Office of Indian Affairs, Construction Division, Washington, D. C.

Navy Department, Bureau of Ships, David Taylor Model Basin, Washington, D. C.

Navy Department, United States Navy Yard, Portsmouth, N. H.

Navy Department, United States Navy Yard, Public Works Design Section, Pearl Harbor, T. H.

Treasury Department. Washington. \mathbf{D} , \mathbf{C} .

Veterans' Administration, Washington, D. C.

War Department, Washington, D. C.

COMMERCIAL STANDARDS

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tion).
2-30. Mopsticks.
3-40. Stoddard solvent (third edition).
4-29. Staple porcelain (all-clay) plumbing fixtures.

hrass. copper, steel, and

5-40. Pipe nipples; brass, copper, steel, and wrought iron.

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23–30. Feldspar. 24–30. Standard screw threads.	dorant, and germicide.
25-30. Special screw threads.	69-38. Pine oil disinfectant.
26-30. Aromatic red cedar closet lining.	70-41. Phenolic disinfectant (emulsifying type) (second edition) (published
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32-31. Cotton cloth for rubber and pyroxylin	type).
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34-31. Bag, case, and strap leather.	
35-31. Plywood (hardwood and eastern red cedar).	74-39. Solid hardwood wall paneling. 75-39. Automatic mechanical draft oil
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edition). 40-32. Surgeons' rubber gloves. 41-32. Surgeons' latex gloves.	79-40. Blown, drawn, and dropped lenses for sun glasses (second edition) (published with CS78-40).
41-32. Surgeons' latex gloves.	sun glasses (second edition) (pub-
42-35. Fiber insulating board (second edition).	180-41 Electric direction signal systems
43-32. Grading of sulphonated oils.	other than semaphore type for com-
44–32. Apple wraps.	mercial and other vehicles subject to special motor vehicle laws (after
45-40. Douglas fir plywood (domestic grades) (fourth edition).	market).
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47–34. Marking of gold-filled and rolled-gold- plate articles other than watch	hiclas (after market)
cases.	83-41. Clearance, marker, and identification lamps for vehicles (after market).
48-40. Domestic burners for Pennsylvania anthracite (underfeed type) (sec-	84-41. Electric tail lamps for vehicles (after
ond edition).	market).
49-34. Chip board laminated chip board, and	85-41. Electric license-plate lamps for ve-
miscellaneous boards for book-bind- ing purposes.	hicles (after market). 86-41. Electric stop lamps for vehicles (after
50-34. Binders board for bookbinding and	market).
other purposes. 51-35. Marking articles made of silver in	87-41. Red electric warning lanterns. 88-41. Liquid-burning flares.
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52-35. Mohair pile fabrics (100-percent mo-	90- (Reserved for power shovels and
hair plain velvet, 100-percent mohair plain frieze, and 50-percent	cranes). 91-41. Factory-fitted Douglas fir entrance
mohair plain frieze).	doors.
mohair plain frieze). 53-35. Colors and finishes for cast stone. 54-35. Mattresses for hospitals.	92-41. Cedar, cypress, and redwood tank stock lumber.
Notice.—Those interested in commerci	ial standards with a view toward accept-
ing them as a basis of everyday practice	may secure copies of the above standards,

Notice.—Those interested in commercial standards with a view toward accepting them as a basis of everyday practice may secure copies of the above standards, while the supply lasts, by addressing the Division of Trade Standards, National Bureau of Standards, Washington, D. C.